

Unit 4

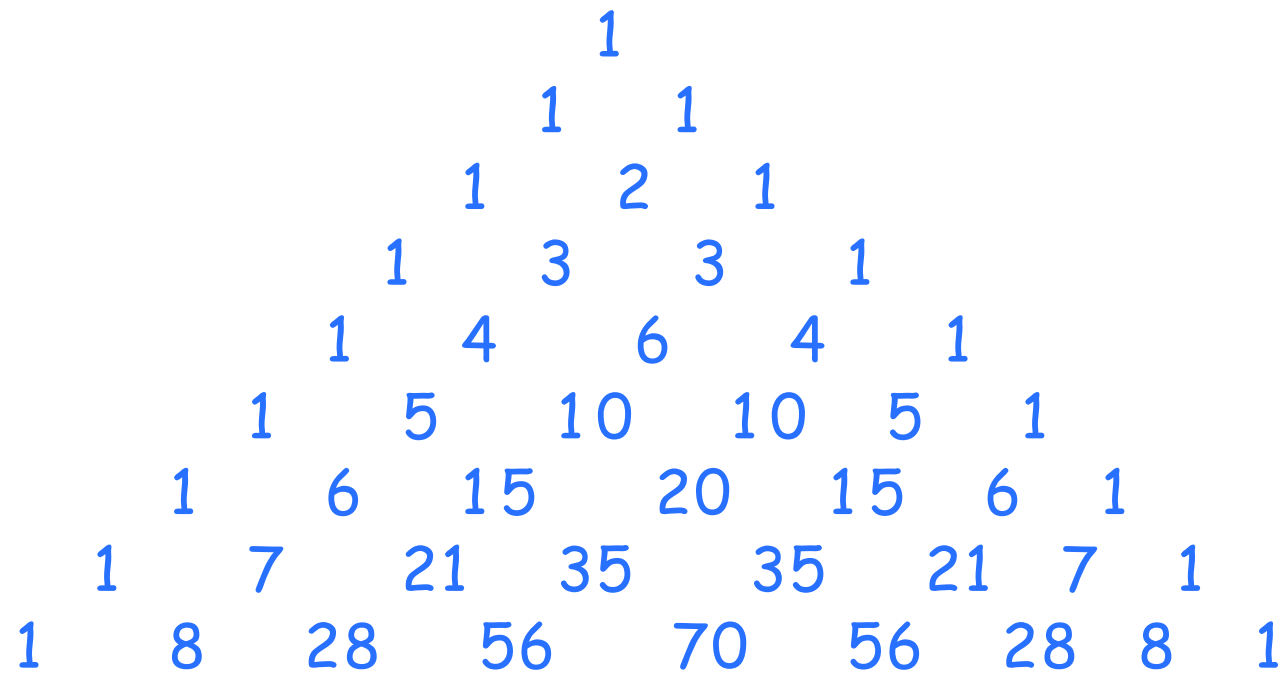
Day 3

Section 3.3

Binomial Expansion


Using Pascal's Triangle

PASCAL'S TRIANGLE



PUT ON SIDE BOARD

Using Pascal's triangle for binomial expansion.

1) $(x+y)^5$  Row #

1 5 10 10 5 1

$$1 \cdot x^5 \cdot y^0 + 5 \cdot x^4 \cdot y^1 + 10 \cdot x^3 \cdot y^2 + 10 \cdot x^2 \cdot y^3 + 5 \cdot x \cdot y^4 + 1 \cdot x^0 \cdot y^5$$
$$x^5 + 5x^4y + 10x^3y^2 + 10x^2y^3 + 5xy^4 + y^5$$

Watch your signs and coefficients!!!

$$2) (2x - y)^7 \quad 1 \quad 7 \quad 21 \quad 35 \quad 35 \quad 21 \quad 7 \quad 1$$

$$(2x)^7 + 7(2x)^6(-y) + 21(2x)^5(-y)^2 + 35(2x)^4(-y)^3 + 35(2x)^3(-y)^4 \\ + 21(2x)^2(-y)^5 + 7(2x)(-y)^6 + (-y)^7$$

$$128x^7 - 448x^6y + 672x^5y^2 - 560x^4y^3 + 280x^3y^4 \\ - 84x^2y^5 + 14xy^6 - y^7$$

$$(2x)^0 = 1$$

$$3) (3a+2b)^4$$

$$1 \quad 4 \quad 6 \quad 4 \quad 1$$

$$1 \cdot (3a)^4 + 4(3a)^3(2b) + 6(3a)^2(2b)^2 + 4(3a)(2b)^3 + (2b)^4$$

$$81a^4 + 216a^3b + 216a^2b^2 + 96ab^3 + 16b^4$$

HOMEWORK

Unit 4 Day 3
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